

MEMORANDUM

DATE: August 26, 2019

TO: Ken Lyons
Boardwalk Real Estate LLC

FROM: Curtis Chin, P.E.
TENW

SUBJECT: Mine Hill Road Plat
Traffic Assessment
TENW Project No. 5921

This memorandum documents the traffic assessment completed for the proposed Mine Hill Road Plat located at 345 & 375 Mine Hill Road SW in Issaquah, WA as shown in the **Figure 1** site vicinity map. The primary purpose of the analysis was to assess the operations of the adjacent intersection of Wildwood Blvd SW/SW Clark Street which would provide the primary access to the project site.



Executive Summary

Proposal. The proposed project includes the development of 8 single family lots and 12 cluster housing lots. Access to 17 of the lots would be provided via SW Clark Street and three lots would have direct access on to Mine Hill Road SW. Existing uses on the site include three single family homes, two of which are currently occupied and one is vacant. For this analysis a buildout year of 2021 was used.

Trip Generation. The proposed Mine Hill Road Plat project is estimated to generate 218 net new weekday daily trips with 18 trips occurring during the weekday AM peak hour (5 in, 13 out) and 20 trips occurring during the weekday PM peak hour (13 in, 7 out).

Level of Service Analysis. A level of service (LOS) analyses was conducted at two off-site study intersections including (1) Wildwood Blvd SW/SW Newport Way (2) Wildwood Blvd SW/SW Clark Street and. The results of the weekday AM and PM LOS analyses at the study intersections indicate that both intersections are expected to operate at LOS B or better during the weekday AM peak hour and PM peak hours in 2021 without or with the proposed project.

Project Impacts on Wildwood Blvd SW/SW Clark Street. The intersection of Wildwood Blvd SW/SW Clark Street is currently a stop controlled T-intersection. The increase in trips on Clark Street SW with the proposed Mine Hill Road Plat is expected to be 16 trips during the AM peak hour (12 eastbound, 4 westbound) and 19 trips during the PM peak hour (7 eastbound, 12 westbound). As a result, the impact of the project on the Wildwood Blvd SW/SW Clark Street is expected to be minimal. No increase in queues are expected and the increase in delay for the stop controlled SW Clark Street approach is expected to be less than 0.2 seconds.

The intersection (entering) sight distance looking to the north from the stop controlled eastbound approach of the Wildwood Blvd SW/SW Clark Street intersection does not meet City of Issaquah standards. However, the collision history at this location includes only one collision at the intersection over the past five years. The one collision involved an eastbound motorcycle on SW Clark C Street turning left on Wildwood Blvd SW colliding with a northbound vehicle on Wildwood Blvd SW. Since the one collision that occurred at the intersection involved a vehicle from the south, this would indicate that the available sight distance looking to the north does not have a significant impact on collision frequency at the intersection. In addition, stopping sight distance on Wildwood Blvd SW would be met for a vehicle approach SW Clark Street from the north. As a result, we would not anticipate the level of trips generated by the Mine Hill Road Plat would have a significant impact on the collision frequency at the Wildwood Blvd SW/SW Clark Street intersection.



Figure 1: Site Vicinity Map



Introduction

The following items are addressed in this traffic assessment:

- Project Description
- Collision History
- Trip Generation
- Level of Service Analysis
- Operations of Wildwood Blvd SW/SW Clark Street
 - Sight Distance
 - Queue Interactions from Wildwood Blvd SW/SW Newport Way Signal

Project Description

The proposed Mine Hill Road Plat located at 345 & 375 Mine Hill Road SW in Issaquah, WA. The proposed project includes the development of 8 single family lots and 12 cluster housing units. Access to 17 of the lots would be provided via SW Clarks Street and three lots would have direct access on to Mine Hill Road SW. Existing uses on the site include three single family homes, two of which are currently occupied and one is vacant. For this analysis a buildout year of 2021 was used. A preliminary site plan concept is provided in [Figure 2](#).

Trip Generation

The trip generation estimates for the proposed and existing occupied homes to be removed were based on methodology documented in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th edition for Land Use Code (LUC) 210 (Single-Family Detached Housing). The resulting net new weekday Daily, AM, and PM peak hour vehicular trip generation estimates for the Mine Hill Road Plat project are summarized in [Table 1](#). A detailed trip generation estimate is included in [Attachment A](#).

Table 1
Mine Hill Road Plat - Trip Generation Summary

Time Period	Net New Trips Generated		
	In	Out	Total
Weekday Daily	109	109	118
Weekday AM Peak Hour	5	13	18
Weekday PM Peak Hour	13	7	20

As shown in [Table 1](#), the proposed Mine Hill Road Plat is estimated to generate 118 net new weekday daily trips with 18 net new trips occurring during the weekday AM peak hour (5 in, 13 out) and 20 net new trips occurring during the weekday PM peak hour (13 in, 7 out).

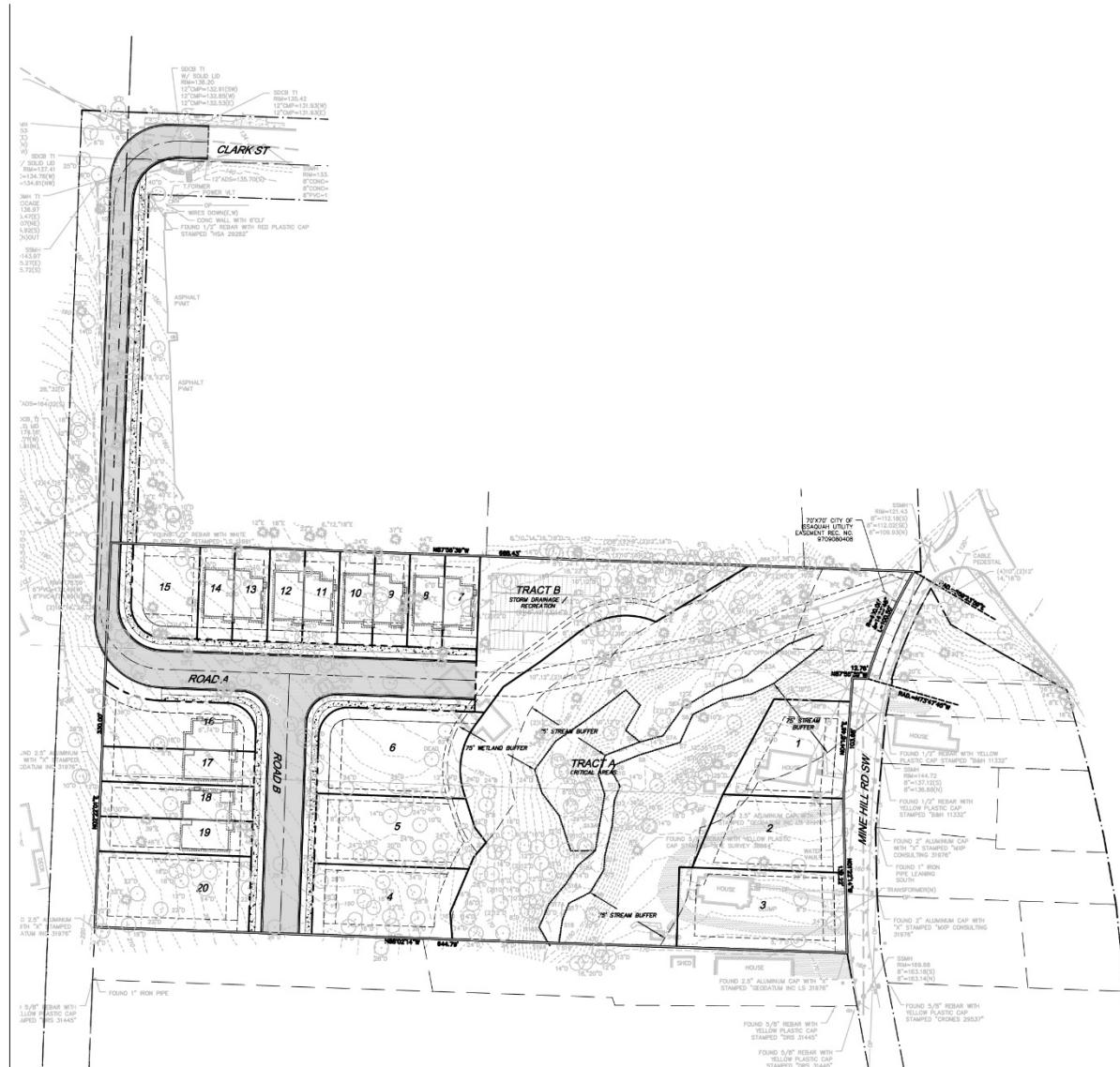


Figure 2: Preliminary Site Plan



Collision History

Historic collisions at the study intersections were analyzed for the five-year period from 2014 to 2018. Collision data was provided by WSDOT. Summaries of the total and yearly average collisions during this period are provided in **Table 2**. Summaries of collisions by type over the three-year period are provided in **Table 3**.

Table 2
Collision Data Summary, January 1, 2014 to December 31, 2018

Location	2014	2015	2016	2017	2018	Five-Year Total Collisions	Average Annual Collisions
1. Wildwood Blvd SW / SW Newport Way	0	1	1	0	1	3	0.60
2. Wildwood Blvd SW / SW Clark Street	0	0	0	0	1	1	0.20

Source: WSDOT Collision Records.

Table 3
Collision Data Summary by Type, January 1, 2014 to December 31, 2018

Location	5-Year Total Collisions	Average Annual Collision Rate	Approach Turn	Collision Type				
				Sideswipe	Right Angle	Rear-end	Pedestrian Involved	Other
1. Wildwood Blvd SW / SW Newport Way	3	0.60	1	0	0	0	2	0
2. Wildwood Blvd SW / SW Clark Street	1	0.20	0	0	1	0	0	0

Source: WSDOT Collision Records.

As shown in the above tables, only one collision has occurred at the Wildwood Blvd SW/SW Clark Street intersection over the most recent five year time period. The one collision involved an eastbound motorcycle on SW Clark C Street turning left on Wildwood Blvd SW colliding with a northbound vehicle on Wildwood Blvd SW.

Existing and Future Year Traffic Volumes

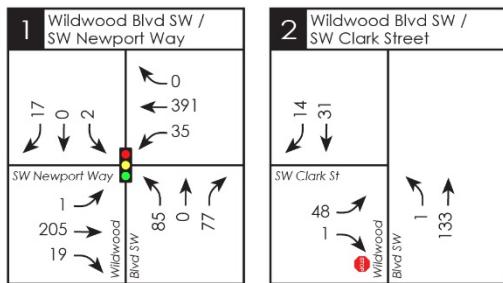
Existing weekday AM and PM peak hour traffic counts were conducted at the two off-site study intersections on Thursday June 6, 2019. The traffic count sheets are provided in **Attachment B**. The existing weekday AM and PM peak hour traffic volumes represent the highest hour of traffic between 7:00 and 9:00 a.m. and 4:00 and 6:00 p.m. respectively. The existing AM and PM peak hour traffic volumes at the two study intersections are shown in **Figure 3**.

The distribution and assignment of the weekday AM and PM peak hour project trips were based on existing travel patterns in the area. **Figure 4** shows the assignment of the net new AM and PM peak hour project trips through the study intersections.

To estimate future 2021 baseline traffic volumes without the project at the study intersections, an annual growth rate of 2 percent was applied to the 2019 existing traffic volumes. **Figure 5** illustrates the future 2021 baseline AM and PM peak hour traffic volumes without the proposed Mine Hill Road Plat at the study intersections. To determine the future year with-project traffic volumes, the net new project-generated trips which are shown in **Figure 4** were added to the future baseline volumes to obtain future with-project traffic volumes. The resulting total with-project AM and PM peak hour traffic volumes at the study intersections are shown in **Figure 6**.



AM Peak Hour



PM Peak Hour

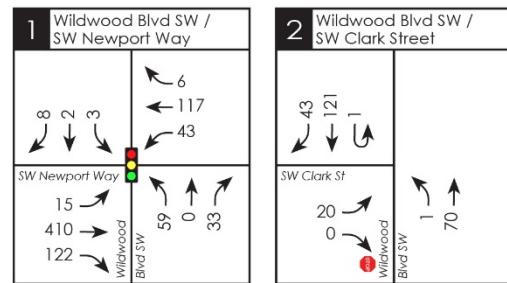
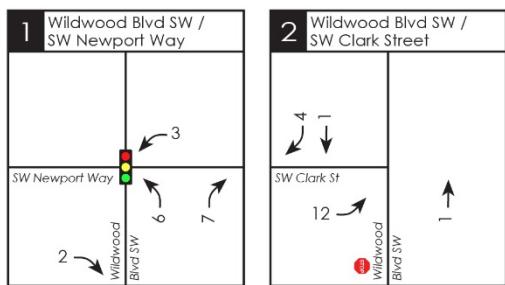


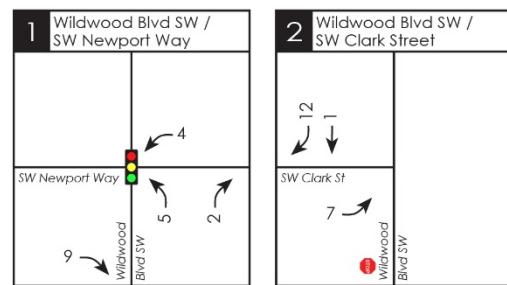
Figure 3: 2019 Existing Peak Hour Traffic Volumes



AM Peak Hour



PM Peak Hour

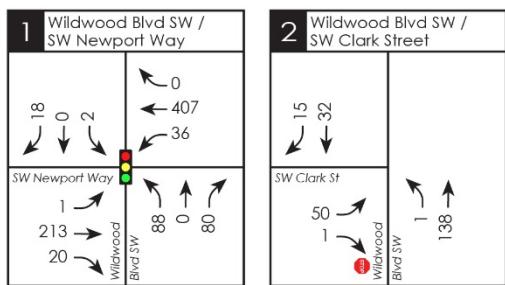


NOT TO SCALE

Figure 4: Weekday Peak Hour Net Project Trip Assignment



AM Peak Hour



PM Peak Hour

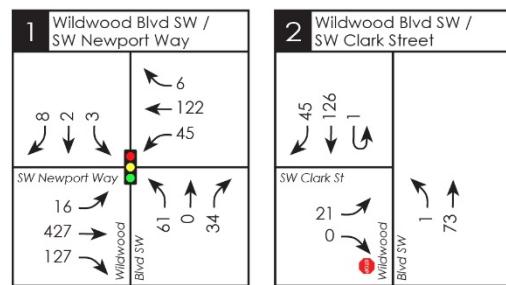
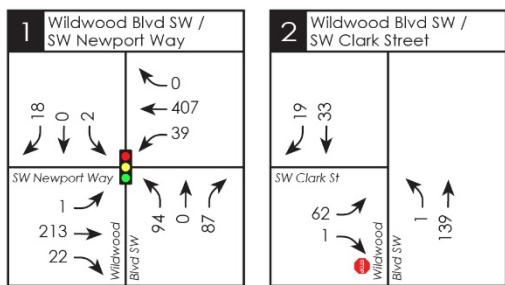


Figure 5: 2021 Without Project Peak Hour Traffic Volumes



AM Peak Hour



PM Peak Hour

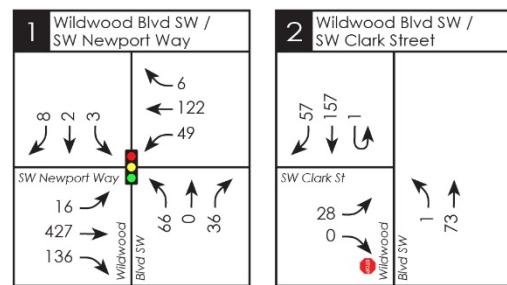


Figure 6: 2021 With Project Peak Hour Traffic Volumes



Level of Service and Queue Analysis

Weekday AM and PM peak hour level of service (LOS) analyses at the study intersections were conducted using the methodologies and procedures outlined in the latest edition of the *Highway Capacity Manual* (6th Edition). LOS serves as an indicator of the quality of traffic flow and degree of congestion at an intersection or roadway segment. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. The LOS methodology is described in **Attachment C**. The *Synchro Version 10* software package was used to determine LOS. Existing signal timing provided by the City of Issaquah was used in the analysis. In addition, the eastbound queues from the stop controlled approach at the Wildwood Blvd SW/SW Newport Way intersection were also analyzed.

Table 4 summarizes the existing 2019 and future 2021 LOS and queue results at the study intersections. The detailed LOS calculations sheets are included in **Attachment C**.

Table 4
Peak Hour LOS and Queue Summary

Site Access / Movement	2019 Existing			2021 Without Project ³			2021 With Project ³		
	LOS ¹	Delay (sec) ²	95 th % Queue (ft)	LOS ¹	Delay (sec) ²	95 th % Queue (ft)	LOS ¹	Delay (sec) ²	95 th % Queue (ft)
Weekday AM Peak Hour									
<u>Signalized Intersection</u>									
1. Wildwood Blvd SW/SW Newport Way	A	8.0	-	A	8.0	-	A	8.3	-
<u>Stop Controlled Intersection</u>									
2. Wildwood Blvd SW/SW Clark St Eastbound Approach	B	10.4	<25'	B	10.5	<25'	B	10.6	<25'
Weekday PM Peak Hour									
<u>Signalized Intersection</u>									
1. Wildwood Blvd SW/SW Newport Way	A	5.8		A	5.8	-	A	6.0	-
<u>Stop Controlled Intersection</u>									
2. Wildwood Blvd SW/SW Clark St Eastbound Approach	A	9.8	<25'	A	9.9	<25'	B	10.0	<25'

¹ LOS = Level of Service.

² Delay refers to average control delay in seconds per vehicle.

³ <25' indicates a queue that is statistically less than 1 vehicle.

As shown in **Table 4**, the signalized study intersection and controlled movements at the stop controlled study intersection are expected to operate at LOS B or better in the future with or without the project during the weekday AM and PM peak hours. In addition, the eastbound queues at the stop controlled approach to the Wildwood Blvd SW/SW Clark Street intersection are expected to be statistically less than 1 vehicle in the future without or with the project.

Operations of Wildwood Blvd SW/SW Clark St

Sight Distance

Intersection (entering) sight distance and stopping sight distance at Wildwood Blvd SW/SW Clark St were field measured by TENW on June 25, 2019. The sight distance measurements were based on standards included in the *City of Issaquah Department of Public Works Street Standards (Transportation)*, adopted December 6, 2010 and the WSDOT Design Manual. Sight distance requirements associated with a design speed of 30 mph (25 mph posted speed limit + 5 mph) were used in the analysis. Entering sight distance is measured from a point 14.5 feet back from the edge of the traveled way and 3.5 feet above the road surface, looking at an object 3.5 feet above the road surface. Stopping sight distance standards were based on the July 2016 edition of the WSDOT Design Manual Chapter 1260.03 Stopping Sight Distance. WSDOT standards use a driver's eye height of 3.5 feet, and an object height of 2.0 feet.

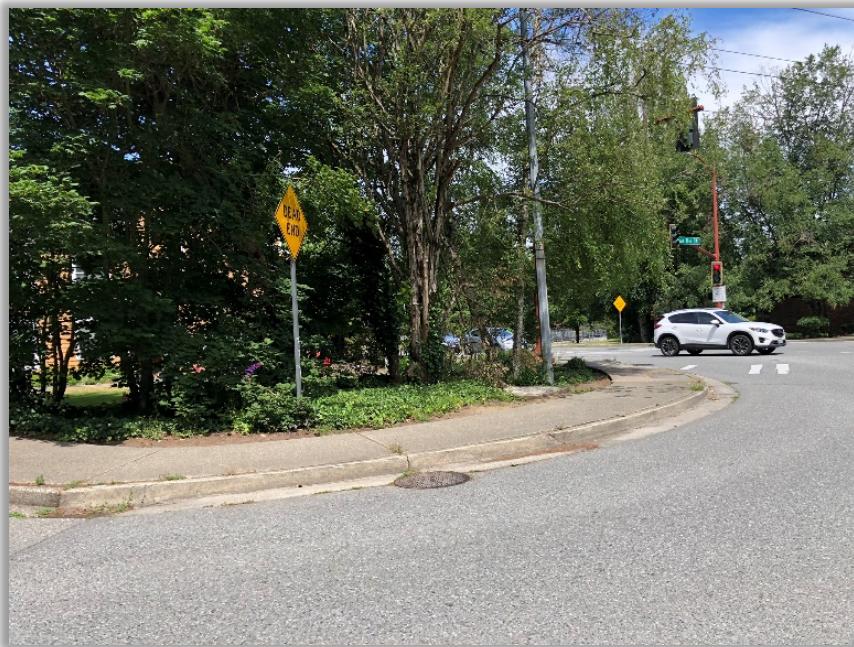
Intersection (Entering) Sight Distance

Based on a 30 mph design speed on Wildwood Blvd SW, the desirable entering sight distance for left-turning vehicles is 335 feet. Looking to the south along Wildwood Blvd SW, the available entering sight distance from a point 14.5 feet back from the edge of the traveled way, was verified to exceed the 335 foot standard. Entering sight distance looking the north is limited by existing vegetation as well as an existing residential building on private property. The available entering sight distance looking to the north was measured to be approximately 135 feet which is less than the City standard.

Photos looking south and north on Wildwood Blvd SW from SW Clark Street are included below.



View looking south on Wildwood Blvd SW from SW Clark Street.



View looking north on Wildwood Blvd SW from SW Clark Street.

Stopping Sight Distance

Based on a 30 mph design speed on Wildwood Blvd SW, the recommended design value for stopping sight distance based on WSDOT *Design Manual* standards is 200 feet (*Design Manual*, Exhibit 1260-1). Based on our field observations, the available stopping sight distance on the southbound and northbound approaches to the SW Clark Street exceeds 200 feet. Therefore, the stopping sight distance on Wildwood Blvd SW meets the applicable standards.

With adequate stopping sight distance provided on the Wildwood Blvd SW approaching SW Clark Street, drivers would have adequate time to react to avoid collisions with exiting vehicles from SW Clark Street. As indicated by the collision history at this location, only one collision has occurred at the intersection over the past five years. The one collision involved an eastbound motorcycle on SW Clark C Street turning left on Wildwood Blvd SW colliding with a northbound vehicle on Wildwood Blvd SW. Since the one collision that occurred at the intersection involved a vehicle from the south, this would indicate that the available sight distance looking to the north does not have a significant impact on collision frequency at the intersection.

Queue Interactions from Wildwood Blvd SW/SW Newport Way Signal

AM and PM peak hour queuing were evaluated on Wildwood Blvd SW from the Wildwood Blvd SW/Newport Way signal for future conditions with the proposed project. Queues were evaluated to assess how nearby signal operations might influence operations at the Wildwood Blvd SW/SW Clark Street intersection.

Both average and 95th percentile queues were reported and are summarized in **Table 4**. The reported 95th percentile queues represent a condition that is exceeded only 5 percent of the time and are based on the results of the Synchro analysis. The queue analysis worksheets are included in **Attachment C**.

Table 4
AM and PM Peak Hour Queues on NB Wildwood Blvd SW

Intersection / Movement	Approximate Distance to SW Clark St (ft)	Queue Length	
		Average ¹	95 th Percentile ¹
Weekday AM Peak Hour			
Wildwood Blvd SW/SW Newport Way		25'	50'
NB Shared Left-Thru	25'	0'	25'
NB Right			
Weekday PM Peak Hour			
Wildwood Blvd SW/SW Newport Way			
NB Shared Left-Thru		25'	50'
NB Right	25'	0'	25'

¹ <25' indicates a queue that is statistically less than 1 vehicle.

As shown in **Table 4**, based on our analysis, the queues on Wildwood Blvd SW approaching SW Newport Way (northbound) on average are not anticipated to block exiting vehicles from SW Clark Street during the AM and PM peak hours. Therefore, queuing on Wildwood Blvd SW is not expected to have a significant impact on operations at the Wildwood Blvd SW/SW Clark Street intersection under future conditions with the proposed Mine Hill Road Plat. This conclusion is consistent with field observations of existing conditions completed by TENW in June 2019 during the AM and PM peak hours.

If you have any questions regarding the information presented in this analysis, please call me at 425-250-5003 or email at chin@tenw.com.

cc: Chris Bicket, P.E. TENW Principal

Attachments

ATTACHMENT A

Trip Generation

Mine Hill Road Plat
Trip Generation Summary

Land Use	Units ¹	ITE LUC ²	Directional Distribution		Trip Rate	Trips Generated					
			In	Out		In	Out	Total			
Daily											
<i>Proposed Use:</i>											
Single-Family Homes	20 DU	210	50%	50%	EQN	119	118	237			
<i>Less Existing Use:</i>											
Single-Family Homes	2 DU	210	50%	50%	9.44	-10	-9	-19			
Net Daily Trips =						109	109	218			
AM Peak Hour											
<i>Proposed Use:</i>											
Single-Family Homes	20 DU	210	25%	75%	EQN	5	14	19			
<i>Less Existing Use:</i>											
Single-Family Homes	2 DU	210	25%	75%	0.74	0	-1	-1			
Net AM Peak Hour Trips =						5	13	18			
PM Peak Hour											
<i>Proposed Use:</i>											
Single-Family Homes	20 DU	210	63%	37%	EQN	14	8	22			
<i>Less Existing Use:</i>											
Single-Family Homes	2 DU	210	63%	37%	EQN	-1	-1	-2			
Net PM Peak Hour Trips =						13	7	20			

Notes:

¹ DU = Dwelling Units.

² Institute of Transportation Engineers, Trip Generation Manual, 10th edition Land Use Code.

ATTACHMENT B

Existing Traffic Counts



(303) 216-2439
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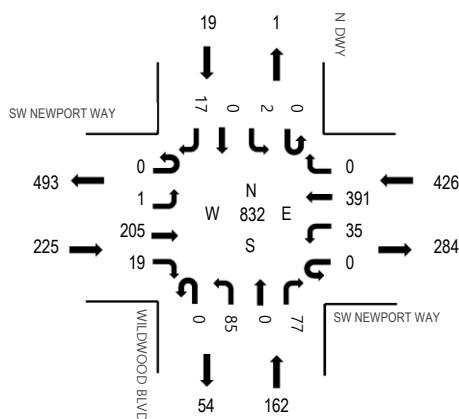
Location: 1 WILLOWOOD BLVD SW & SW NEWPORT WAY AM

Date and Start Time: Thursday, June 6, 2019

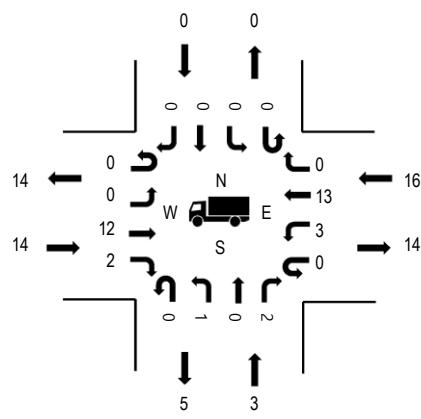
Peak Hour: 07:30 AM - 08:30 AM

Peak Hour

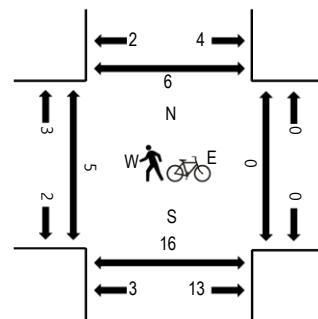
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	6.2%	0.62
WB	3.8%	0.81
NB	1.9%	0.78
SB	0.0%	0.59
All	4.0%	0.87

Traffic Counts - All Vehicles

Interval Start Time	SW NEWPORT WAY				SW NEWPORT WAY				WILLOWOOD BLVD SW				N DWY				Rolling Hour	
	Eastbound		Westbound		Northbound		Southbound											
U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		
7:00 AM	0	0	16	4	0	2	59	0	0	24	0	17	0	1	0	1	124	739
7:15 AM	0	0	30	6	0	0	70	0	0	34	0	10	0	1	0	3	154	817
7:30 AM	0	0	86	5	0	4	92	0	0	21	0	27	0	0	0	4	239	832
7:45 AM	0	0	64	7	0	8	86	0	0	30	0	22	0	2	0	3	222	748
8:00 AM	0	0	29	2	0	14	118	0	0	21	0	16	0	0	0	2	202	717
8:15 AM	0	1	26	5	0	9	95	0	0	13	0	12	0	0	0	8	169	
8:30 AM	0	0	28	3	0	5	83	3	0	24	0	9	0	0	0	0	155	
8:45 AM	0	2	31	6	0	5	95	1	0	29	0	19	0	0	0	3	191	
Count Total	0	3	310	38	0	47	698	4	0	196	0	132	0	4	0	24	1,456	
Peak Hour	0	1	205	19	0	35	391	0	0	85	0	77	0	2	0	17	832	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	4	0	6	0	10	7:00 AM	3	1	0	1	5
7:15 AM	2	1	4	0	7	7:15 AM	0	1	0	1	2
7:30 AM	8	1	3	0	12	7:30 AM	0	8	0	4	12
7:45 AM	0	1	2	0	3	7:45 AM	4	5	0	1	10
8:00 AM	4	1	3	0	8	8:00 AM	1	1	0	0	2
8:15 AM	2	0	8	0	10	8:15 AM	0	2	0	1	3
8:30 AM	3	2	8	0	13	8:30 AM	2	0	0	2	4
8:45 AM	1	1	2	0	4	8:45 AM	3	1	0	1	5
Count Total	24	7	36	0	67	Count Total	13	19	0	11	43
Peak Hour	14	3	16	0	33	Peak Hour	5	16	0	6	27



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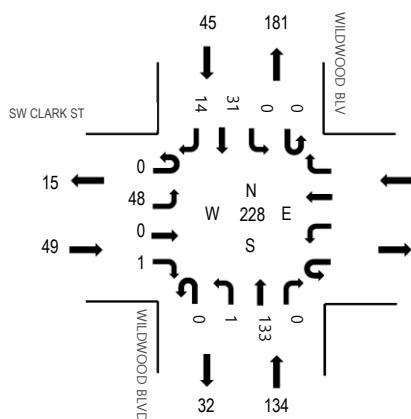
Location: 2 WILLOWOOD BLVD SW & SW CLARK ST AM

Date and Start Time: Thursday, June 6, 2019

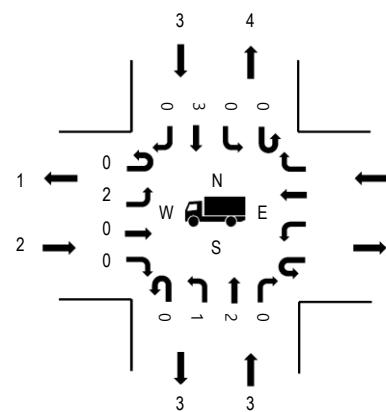
Peak Hour: 07:15 AM - 08:15 AM

Peak Hour

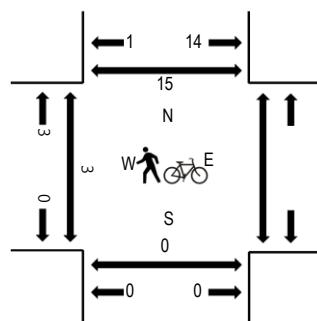
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



HV% PHF

	HV%	PHF
EB	4.1%	0.64
WB		
NB	2.2%	0.80
SB	6.7%	0.75
All	3.5%	0.84

Traffic Counts - All Vehicles

Interval Start Time	SW CLARK ST				WILLOWOOD BLVD SW				WILLOWOOD BLVD SW				Rolling Hour			
	Eastbound		Westbound		Northbound		Southbound		U-Turn	Left	Thru	Right	Total			
7:00 AM	0	9	0	0			0	1	32	0	0	0	6	0	48	224
7:15 AM	0	13	0	1			0	0	31	0	0	0	3	3	51	228
7:30 AM	0	6	0	0			0	0	42	0	0	0	6	3	57	217
7:45 AM	0	19	0	0			0	1	33	0	0	0	12	3	68	202
8:00 AM	0	10	0	0			0	0	27	0	0	0	10	5	52	193
8:15 AM	0	7	0	0			0	0	18	0	0	0	6	9	40	
8:30 AM	0	6	0	1			0	0	27	0	0	0	6	2	42	
8:45 AM	0	12	0	1			0	0	36	0	0	0	6	4	59	
Count Total	0	82	0	3			0	2	246	0	0	0	55	29	417	
Peak Hour	0	48	0	1			0	1	133	0	0	0	31	14	228	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	1			1	2	7:00 AM	0	0	1	1
7:15 AM	1	0			0	1	7:15 AM	0	0	1	1
7:30 AM	0	1			2	3	7:30 AM	0	0	8	8
7:45 AM	1	1			0	2	7:45 AM	1	0	5	6
8:00 AM	0	1			1	2	8:00 AM	2	0	1	3
8:15 AM	0	0			1	1	8:15 AM	1	0	1	2
8:30 AM	1	2			1	4	8:30 AM	0	0	0	0
8:45 AM	0	1			0	1	8:45 AM	0	0	1	1
Count Total	3	7			6	16	Count Total	4	0	18	22
Peak Hour	2	3			3	8	Peak Hour	3	0	15	18



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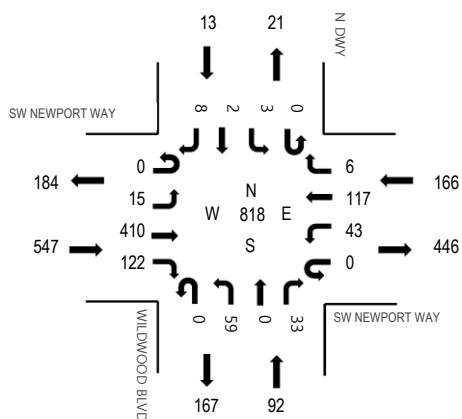
Location: 1 WILDWOOD BLVD SW & SW NEWPORT WAY PM

Date and Start Time: Thursday, June 6, 2019

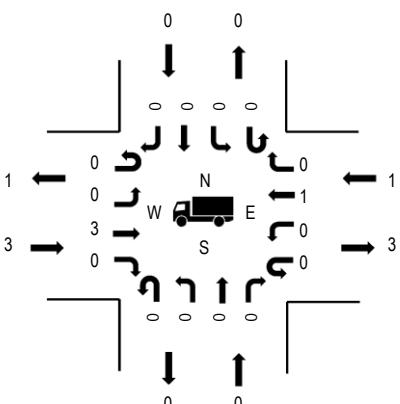
Peak Hour: 05:00 PM - 06:00 PM

Peak Hour

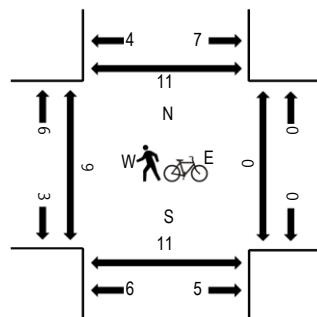
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.5%	0.96
WB	0.6%	0.88
NB	0.0%	0.82
SB	0.0%	0.54
All	0.5%	0.94

Traffic Counts - All Vehicles

Interval Start Time	SW NEWPORT WAY				SW NEWPORT WAY				WILDWOOD BLVD SW				N DWY				Total	Rolling Hour	
	Eastbound		Westbound		Northbound		Southbound												
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			
4:00 PM	0	2	96	24	0	3	39	0	0	20	0	11	0	0	0	1	196	756	
4:15 PM	0	5	86	23	0	7	31	0	0	19	0	5	0	0	0	0	176	749	
4:30 PM	0	3	103	34	0	7	24	0	0	15	0	3	0	0	0	4	193	783	
4:45 PM	0	3	101	23	0	4	36	0	0	13	1	7	0	0	0	3	191	791	
5:00 PM	0	6	106	30	0	6	22	0	0	9	0	8	0	1	0	1	189	818	
5:15 PM	0	2	104	34	0	12	34	1	0	14	0	6	0	2	0	1	210		
5:30 PM	0	4	100	24	0	12	29	3	0	18	0	9	0	0	0	2	201		
5:45 PM	0	3	100	34	0	13	32	2	0	18	0	10	0	0	2	4	218		
Count Total	0	28	796	226	0	64	247	6	0	126	1	59	0	3	2	16	1,574		
Peak Hour	0	15	410	122	0	43	117	6	0	59	0	33	0	3	2	8	818		

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	0	1	0	3	4:00 PM	3	3	0	3	9
4:15 PM	4	3	0	0	7	4:15 PM	3	1	3	1	8
4:30 PM	2	0	0	0	2	4:30 PM	0	2	0	1	3
4:45 PM	3	1	0	1	5	4:45 PM	6	11	1	5	23
5:00 PM	2	0	0	0	2	5:00 PM	2	1	0	2	5
5:15 PM	0	0	1	0	1	5:15 PM	4	4	0	4	12
5:30 PM	1	0	0	0	1	5:30 PM	2	4	0	2	8
5:45 PM	0	0	0	0	0	5:45 PM	1	2	0	3	6
Count Total	14	4	2	1	21	Count Total	21	28	4	21	74
Peak Hour	3	0	1	0	4	Peak Hour	9	11	0	11	31



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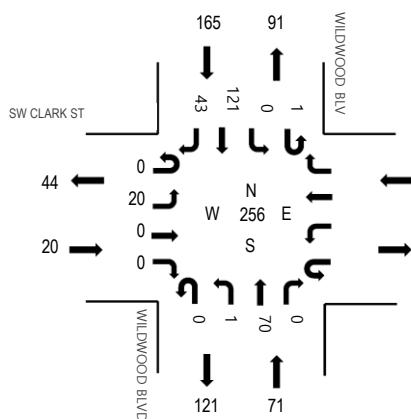
Location: 2 WILDWOOD BLVD SW & SW CLARK ST PM

Date and Start Time: Thursday, June 6, 2019

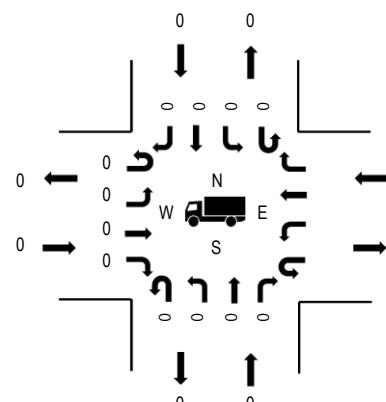
Peak Hour: 05:00 PM - 06:00 PM

Peak Hour

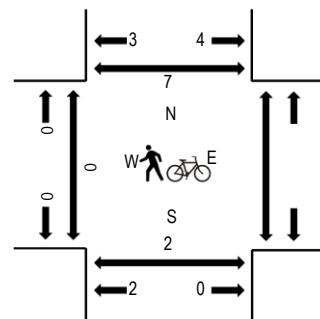
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - All Vehicles

Interval Start Time	SW CLARK ST				WILDWOOD BLVD SW				WILDWOOD BLVD SW				Rolling Hour
	Eastbound		Westbound		Northbound		Southbound						
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
4:00 PM	0	9	0	1					0	0	22	0	60
4:15 PM	0	7	0	0					0	0	16	0	53
4:30 PM	0	2	0	0					0	0	16	0	59
4:45 PM	0	5	0	0					0	0	16	0	48
5:00 PM	0	6	0	0					0	0	11	0	53
5:15 PM	0	2	0	0					0	1	17	0	64
5:30 PM	0	8	0	0					0	0	19	0	63
5:45 PM	0	4	0	0					0	0	23	0	76
Count Total	0	43	0	1					0	1	140	0	476
Peak Hour	0	20	0	0					0	1	70	0	256

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0			1	2	4:00 PM	0	0	3	3
4:15 PM	2	1			2	5	4:15 PM	0	0	1	1
4:30 PM	0	0			0	0	4:30 PM	0	0	2	2
4:45 PM	0	1			0	1	4:45 PM	1	1	9	11
5:00 PM	0	0			0	0	5:00 PM	0	0	1	1
5:15 PM	0	0			0	0	5:15 PM	0	1	1	2
5:30 PM	0	0			0	0	5:30 PM	0	0	4	4
5:45 PM	0	0			0	0	5:45 PM	0	1	1	2
Count Total	3	2			3	8	Count Total	1	3	22	26
Peak Hour	0	0			0	0	Peak Hour	0	2	7	9

ATTACHMENT C

Level of Service Results

Level of Service Methodology

Level of service calculations for intersections were based on methodology and procedures outlined in the 2016 update of the *Highway Capacity Manual*, Transportation Research Board (6th Edition) using *Synchro 10* traffic analysis software.

LOS generally refers to the degree of congestion on a roadway or intersection. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. A letter scale from A to F generally describes intersection LOS. At signalized intersections, LOS A represents free-flow conditions (motorists experience little or no delays), and LOS F represents forced-flow conditions where motorists experience an average delay in excess of 80 seconds per vehicle.

The LOS reported for signalized intersections represents the average control delay (sec/veh) and can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only).

The LOS reported at stop-controlled intersections is based on the average control delay and can be reported for each controlled minor approach, controlled minor lane group, and controlled major-street movement (and for the overall intersection at all-way stop controlled intersections. Additional v/c ratio criteria apply to lane group or movement LOS only).

Table C1 outlines the current HCM (6th Edition) LOS criteria for signalized and stop-controlled intersections based on these methodologies.

Table C1
LOS Criteria for Signalized and Stop Controlled Intersections¹

Control Delay (sec/veh)	SIGNALIZED INTERSECTIONS		STOP-CONTROLLED INTERSECTIONS		
	<u>LOS by Volume-to Capacity (V/C) Ratio²</u>		<u>LOS by Volume-to Capacity (V/C) Ratio³</u>		
	≤ 1.0	> 1.0		≤ 1.0	> 1.0
≤ 10	A	F	≤ 10	A	F
> 10 to ≤ 20	B	F	> 10 to ≤ 15	B	F
> 20 to ≤ 35	C	F	> 15 to ≤ 25	C	F
> 35 to ≤ 55	D	F	> 25 to ≤ 35	D	F
> 55 to ≤ 80	E	F	> 35 to ≤ 50	E	F
> 80	F	F	> 50	F	F

1 Source: HCM2010 Highway Capacity Manual, Transportation Research Board, 2010.

2 For approach-based and intersection-wide assessments at signals, LOS is defined solely by control delay.

3 For two-way stop controlled intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole at two-way stop controlled intersections. For approach-based and intersection-wide assessments at all-way stop controlled intersections, LOS is solely defined by control delay.

2019 Existing

Lanes, Volumes, Timings

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	205	19	35	391	0	85	0	77	2	0	17
Future Volume (vph)	1	205	19	35	391	0	85	0	77	2	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		714			700			271			377	
Travel Time (s)		19.5			19.1			7.4			10.3	
Confl. Peds. (#/hr)	6	16	16		6	5						5
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	6%	11%	9%	3%	0%	1%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4		4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	21.0	21.0		27.0	27.0		10.0	10.0	10.0	24.0		24.0
Total Split (s)	35.0	35.0		35.0	35.0		25.0	25.0	25.0	25.0		25.0
Total Split (%)	58.3%	58.3%		58.3%	58.3%		41.7%	41.7%	41.7%	41.7%		41.7%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0			0.0
Total Lost Time (s)		5.0			5.0			5.0	5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 60

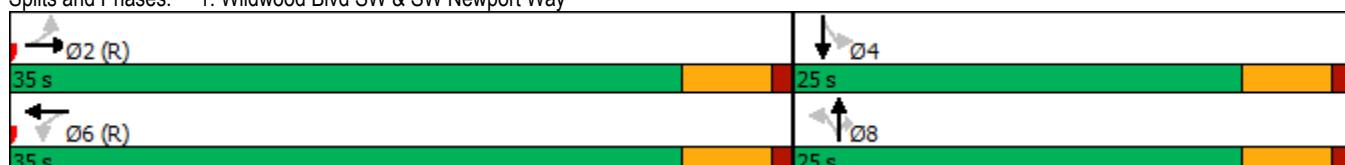
Actuated Cycle Length: 60

Offset: 58 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 1: Wildwood Blvd SW & SW Newport Way



Queues

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	259	489	98	89	22
v/c Ratio	0.11	0.22	0.41	0.26	0.07
Control Delay	4.4	5.1	25.5	6.7	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	5.1	25.5	6.7	4.7
Queue Length 50th (ft)	12	27	33	0	0
Queue Length 95th (ft)	36	71	55	24	9
Internal Link Dist (ft)	634	620	191		297
Turn Bay Length (ft)				150	
Base Capacity (vph)	2272	2272	463	582	555
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.22	0.21	0.15	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary

1: Wildwood Blvd SW & SW Newport Way

06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	205	19	35	391	0	85	0	77	2	0	17
Future Volume (veh/h)	1	205	19	35	391	0	85	0	77	2	0	17
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1856	1856	1856	1900	1900	1856	1900	1900	1900
Adj Flow Rate, veh/h	1	236	22	40	449	0	98	0	89	2	0	20
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	6	6	6	3	3	3	0	0	3	0	0	0
Cap, veh/h	61	2255	207	213	2263	0	294	0	170	72	10	158
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.00	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1	3115	286	198	3211	0	1590	0	1551	57	88	1446
Grp Volume(v), veh/h	137	0	122	256	233	0	98	0	89	22	0	0
Grp Sat Flow(s), veh/h/ln	1810	0	1593	1721	1604	0	1590	0	1551	1591	0	0
Q Serve(g_s), s	0.0	0.0	1.4	0.0	2.8	0.0	0.0	0.0	3.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	1.4	2.7	2.8	0.0	3.1	0.0	3.3	0.7	0.0	0.0
Prop In Lane	0.01		0.18	0.16		0.00	1.00		1.00	0.09		0.91
Lane Grp Cap(c), veh/h	1370	0	1153	1315	1161	0	294	0	170	240	0	0
V/C Ratio(X)	0.10	0.00	0.11	0.19	0.20	0.00	0.33	0.00	0.52	0.09	0.00	0.00
Avail Cap(c_a), veh/h	1370	0	1153	1315	1161	0	607	0	517	589	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.5	0.0	2.5	2.7	2.7	0.0	25.2	0.0	25.2	24.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.3	0.4	0.0	0.5	0.0	1.9	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.3	0.0	0.3	0.7	0.6	0.0	1.3	0.0	1.2	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	2.6	0.0	2.7	3.0	3.1	0.0	25.7	0.0	27.1	24.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	A
Approach Vol, veh/h		259			489			187			22	
Approach Delay, s/veh	2.6			3.0				26.3			24.2	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s	48.7		11.3		48.7		11.3					
Change Period (Y+Rc), s	5.0		5.0		5.0		5.0					
Max Green Setting (Gmax), s	30.0		20.0		30.0		20.0					
Max Q Clear Time (g_c+l1), s	3.4		2.7		4.8		5.3					
Green Ext Time (p_c), s	2.2		0.0		4.6		0.5					
Intersection Summary												
HCM 6th Ctrl Delay			8.0									
HCM 6th LOS			A									

Lanes, Volumes, Timings
2: Wildwood Blvd SW & SW Clark St

06/27/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Volume (vph)	48	1	1	133	31	14
Future Volume (vph)	48	1	1	133	31	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	318			280	271	
Travel Time (s)	8.7			7.6	7.4	
Confl. Peds. (#/hr)	18	3	3			18
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	4%	0%	100%	2%	10%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	48	1	1	133	31	14
Future Vol, veh/h	48	1	1	133	31	14
Conflicting Peds, #/hr	18	3	3	0	0	18
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	0	100	2	10	0
Mvmt Flow	57	1	1	158	37	17

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	242	67	72	0	- 0
Stage 1	64	-	-	-	-
Stage 2	178	-	-	-	-
Critical Hdwy	6.44	6.2	5.1	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.3	3.1	-	-
Pot Cap-1 Maneuver	750	1017	1090	-	-
Stage 1	962	-	-	-	-
Stage 2	848	-	-	-	-
Platoon blocked, %	1	1	1	-	-
Mov Cap-1 Maneuver	724	996	1071	-	-
Mov Cap-2 Maneuver	724	-	-	-	-
Stage 1	944	-	-	-	-
Stage 2	834	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1071	-	728	-	-
HCM Lane V/C Ratio	0.001	-	0.08	-	-
HCM Control Delay (s)	8.4	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lanes, Volumes, Timings

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	410	122	43	117	6	59	0	33	3	2	8
Future Volume (vph)	15	410	122	43	117	6	59	0	33	3	2	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	150	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		714			700			271			377	
Travel Time (s)		19.5			19.1			7.4			10.3	
Confl. Peds. (#/hr)	11	11	11		11	9						9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4		4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	21.0	21.0		27.0	27.0		10.0	10.0	10.0	24.0		24.0
Total Split (s)	32.0	32.0		32.0	32.0		28.0	28.0	28.0	28.0		28.0
Total Split (%)	53.3%	53.3%		53.3%	53.3%		46.7%	46.7%	46.7%	46.7%		46.7%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0			0.0
Total Lost Time (s)		5.0			5.0			5.0	5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 60

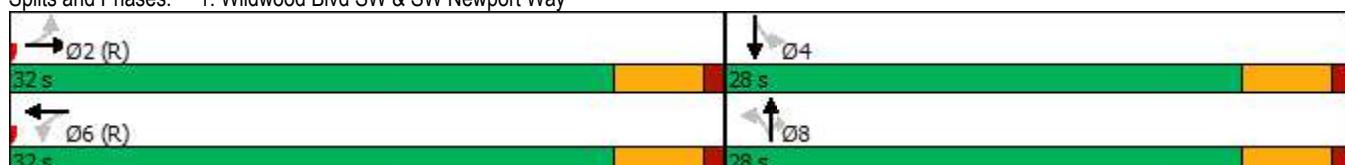
Actuated Cycle Length: 60

Offset: 30 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 1: Wildwood Blvd SW & SW Newport Way



Queues

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	582	176	63	35	14
v/c Ratio	0.22	0.08	0.35	0.15	0.07
Control Delay	2.7	2.8	28.4	9.9	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	2.8	28.4	9.9	15.8
Queue Length 50th (ft)	25	7	21	0	2
Queue Length 95th (ft)	50	18	50	20	15
Internal Link Dist (ft)	634	620	191		297
Turn Bay Length (ft)				150	
Base Capacity (vph)	2644	2297	540	641	601
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.08	0.12	0.05	0.02
Intersection Summary					

HCM 6th Signalized Intersection Summary

1: Wildwood Blvd SW & SW Newport Way

06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	410	122	43	117	6	59	0	33	3	2	8
Future Volume (veh/h)	15	410	122	43	117	6	59	0	33	3	2	8
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	16	436	130	46	124	6	63	0	35	3	2	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	92	1918	556	506	1555	81	269	0	165	88	46	110
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	39	2634	764	568	2136	112	1418	0	1569	147	433	1043
Grp Volume(v), veh/h	315	0	267	85	0	91	63	0	35	14	0	0
Grp Sat Flow(s), veh/h/ln	1866	0	1571	1121	0	1694	1418	0	1569	1623	0	0
Q Serve(g_s), s	0.0	0.0	3.3	0.1	0.0	0.9	2.0	0.0	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	3.3	3.5	0.0	0.9	2.4	0.0	1.2	0.5	0.0	0.0
Prop In Lane	0.05		0.49	0.54		0.07	1.00		1.00	0.21		0.64
Lane Grp Cap(c), veh/h	1421	0	1144	908	0	1233	269	0	165	244	0	0
V/C Ratio(X)	0.22	0.00	0.23	0.09	0.00	0.07	0.23	0.00	0.21	0.06	0.00	0.00
Avail Cap(c_a), veh/h	1421	0	1144	908	0	1233	656	0	601	677	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.7	0.0	2.7	2.3	0.0	2.3	25.0	0.0	24.6	24.2	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.5	0.2	0.0	0.1	0.3	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.8	0.0	0.8	0.2	0.0	0.2	0.8	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	3.0	0.0	3.2	2.6	0.0	2.5	25.4	0.0	25.0	24.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	A
Approach Vol, veh/h	582				176			98			14	
Approach Delay, s/veh	3.1				2.5			25.3			24.3	
Approach LOS	A				A			C			C	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	48.7		11.3		48.7		11.3					
Change Period (Y+Rc), s	5.0		5.0		5.0		5.0					
Max Green Setting (Gmax), s	27.0		23.0		27.0		23.0					
Max Q Clear Time (g_c+l1), s	5.3		2.5		5.5		4.4					
Green Ext Time (p_c), s	5.3		0.0		1.5		0.3					
Intersection Summary												
HCM 6th Ctrl Delay			5.8									
HCM 6th LOS			A									

Lanes, Volumes, Timings
2: Wildwood Blvd SW & SW Clark St

06/27/2019



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y			Y		Y	
Traffic Volume (vph)	20	0	1	70	1	121	43
Future Volume (vph)	20	0	1	70	1	121	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25		25	
Link Distance (ft)	318			280		271	
Travel Time (s)	8.7			7.6		7.4	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							
Sign Control	Stop			Free		Free	
Intersection Summary							
Area Type:	Other						
Control Type:	Unsignalized						

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y	Y	Y	Y	Y	Y	Y
Traffic Vol, veh/h	20	0	1	70	1	121	43
Future Vol, veh/h	20	0	1	70	1	121	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	0
Mvmt Flow	24	0	1	83	1	144	51

Major/Minor	Minor2	Major1	Major2				
Conflicting Flow All	255	170	195	0	-	-	0
Stage 1	170	-	-	-	-	-	-
Stage 2	85	-	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-	-
Pot Cap-1 Maneuver	774	925	1402	-	-	-	-
Stage 1	890	-	-	-	-	-	-
Stage 2	943	-	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-	-
Mov Cap-1 Maneuver	773	925	1402	-	-	-	-
Mov Cap-2 Maneuver	773	-	-	-	-	-	-
Stage 1	889	-	-	-	-	-	-
Stage 2	943	-	-	-	-	-	-

Approach	EB	NB	SB				
HCM Control Delay, s	9.8	0.1					
HCM LOS	A						

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	1402	-	773	-	-		
HCM Lane V/C Ratio	0.001	-	0.031	-	-		
HCM Control Delay (s)	7.6	0	9.8	-	-		
HCM Lane LOS	A	A	A	-	-		
HCM 95th %tile Q(veh)	0	-	0.1	-	-		

2021 Without Project

Lanes, Volumes, Timings

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	213	20	36	407	0	88	0	80	2	0	18
Future Volume (vph)	1	213	20	36	407	0	88	0	80	2	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		714			700			271			377	
Travel Time (s)		19.5			19.1			7.4			10.3	
Confl. Peds. (#/hr)	6	16	16		6	5						5
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	6%	11%	9%	3%	0%	1%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	21.0	21.0		27.0	27.0		10.0	10.0	10.0	24.0	24.0	
Total Split (s)	35.0	35.0		35.0	35.0		25.0	25.0	25.0	25.0	25.0	
Total Split (%)	58.3%	58.3%		58.3%	58.3%		41.7%	41.7%	41.7%	41.7%	41.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 60

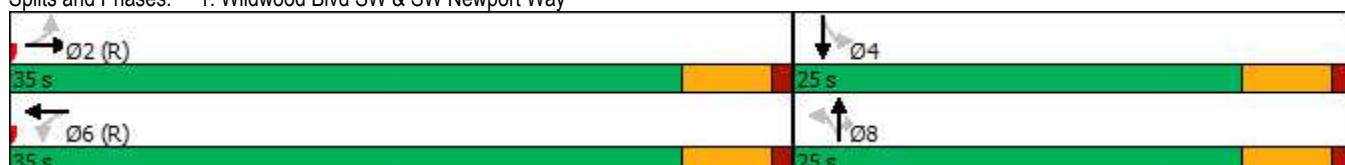
Actuated Cycle Length: 60

Offset: 58 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 1: Wildwood Blvd SW & SW Newport Way



Queues

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	269	509	101	92	23
v/c Ratio	0.12	0.22	0.42	0.27	0.08
Control Delay	4.5	5.1	25.7	6.7	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	5.1	25.7	6.7	5.0
Queue Length 50th (ft)	13	29	34	0	0
Queue Length 95th (ft)	37	74	56	24	9
Internal Link Dist (ft)	634	620	191		297
Turn Bay Length (ft)				150	
Base Capacity (vph)	2268	2266	463	584	555
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.22	0.22	0.16	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	213	20	36	407	0	88	0	80	2	0	18
Future Volume (veh/h)	1	213	20	36	407	0	88	0	80	2	0	18
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1856	1856	1856	1900	1900	1856	1900	1900	1900
Adj Flow Rate, veh/h	1	245	23	41	468	0	101	0	92	2	0	21
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	6	6	6	3	3	3	0	0	3	0	0	0
Cap, veh/h	61	2274	211	212	2286	0	272	0	159	71	8	149
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.00	0.10	0.00	0.10	0.10	0.00	0.10
Sat Flow, veh/h	1	3113	288	195	3214	0	1476	0	1550	57	81	1450
Grp Volume(v), veh/h	142	0	127	267	242	0	101	0	92	23	0	0
Grp Sat Flow(s), veh/h/ln	1810	0	1592	1720	1604	0	1476	0	1550	1588	0	0
Q Serve(g_s), s	0.0	0.0	1.4	0.0	2.9	0.0	2.6	0.0	3.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	1.4	2.7	2.9	0.0	3.8	0.0	3.4	0.8	0.0	0.0
Prop In Lane	0.01		0.18	0.15		0.00	1.00		1.00	0.09		0.91
Lane Grp Cap(c), veh/h	1383	0	1163	1326	1172	0	272	0	159	228	0	0
V/C Ratio(X)	0.10	0.00	0.11	0.20	0.21	0.00	0.37	0.00	0.58	0.10	0.00	0.00
Avail Cap(c_a), veh/h	1383	0	1163	1326	1172	0	594	0	517	588	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.4	0.0	2.4	2.5	2.6	0.0	25.8	0.0	25.7	24.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.3	0.4	0.0	0.6	0.0	2.5	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.3	0.0	0.3	0.7	0.6	0.0	1.4	0.0	1.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	2.5	0.0	2.6	2.9	3.0	0.0	26.4	0.0	28.1	24.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	A
Approach Vol, veh/h		269			509			193			23	
Approach Delay, s/veh	2.5			2.9				27.2			24.6	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s	48.8		11.2		48.8		11.2					
Change Period (Y+Rc), s	5.0		5.0		5.0		5.0					
Max Green Setting (Gmax), s	30.0		20.0		30.0		20.0					
Max Q Clear Time (g_c+l1), s	3.4		2.8		4.9		5.8					
Green Ext Time (p_c), s	2.3		0.0		4.8		0.6					
Intersection Summary												
HCM 6th Ctrl Delay			8.0									
HCM 6th LOS			A									

Lanes, Volumes, Timings
2: Wildwood Blvd SW & SW Clark St

06/27/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Volume (vph)	50	1	1	138	32	15
Future Volume (vph)	50	1	1	138	32	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	318			280	271	
Travel Time (s)	8.7			7.6	7.4	
Confl. Peds. (#/hr)	18	3	3			18
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	4%	0%	100%	2%	10%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	50	1	1	138	32	15
Future Vol, veh/h	50	1	1	138	32	15
Conflicting Peds, #/hr	18	3	3	0	0	18
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	0	100	2	10	0
Mvmt Flow	60	1	1	164	38	18

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	249	68	74	0	-
Stage 1	65	-	-	-	-
Stage 2	184	-	-	-	-
Critical Hdwy	6.44	6.2	5.1	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.3	3.1	-	-
Pot Cap-1 Maneuver	743	1015	1088	-	-
Stage 1	961	-	-	-	-
Stage 2	843	-	-	-	-
Platoon blocked, %	1	1	1	-	-
Mov Cap-1 Maneuver	717	995	1069	-	-
Mov Cap-2 Maneuver	717	-	-	-	-
Stage 1	943	-	-	-	-
Stage 2	829	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1069	-	721	-	-
HCM Lane V/C Ratio	0.001	-	0.084	-	-
HCM Control Delay (s)	8.4	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lanes, Volumes, Timings

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	427	127	45	122	6	61	0	34	3	2	8
Future Volume (vph)	16	427	127	45	122	6	61	0	34	3	2	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	150	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		714			700			271			377	
Travel Time (s)		19.5			19.1			7.4			10.3	
Confl. Peds. (#/hr)	11	11	11		11	9						9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	21.0	21.0		27.0	27.0		10.0	10.0	10.0	24.0	24.0	
Total Split (s)	32.0	32.0		32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (%)	53.3%	53.3%		53.3%	53.3%		46.7%	46.7%	46.7%	46.7%	46.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 60

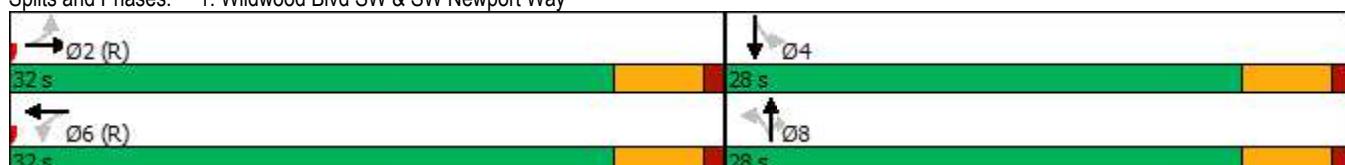
Actuated Cycle Length: 60

Offset: 30 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 1: Wildwood Blvd SW & SW Newport Way



Queues

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	606	184	65	36	14
v/c Ratio	0.25	0.09	0.36	0.15	0.07
Control Delay	3.1	3.2	28.5	10.0	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	3.2	28.5	10.0	15.7
Queue Length 50th (ft)	26	7	22	0	2
Queue Length 95th (ft)	53	19	51	20	14
Internal Link Dist (ft)	634	620	191		297
Turn Bay Length (ft)				150	
Base Capacity (vph)	2469	2120	540	641	610
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.09	0.12	0.06	0.02
Intersection Summary					

HCM 6th Signalized Intersection Summary

1: Wildwood Blvd SW & SW Newport Way

06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	427	127	45	122	6	61	0	34	3	2	8
Future Volume (veh/h)	16	427	127	45	122	6	61	0	34	3	2	8
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	17	454	135	48	130	6	65	0	36	3	2	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	93	1916	554	499	1547	77	270	0	166	88	46	111
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	40	2634	762	559	2127	106	1418	0	1569	146	434	1043
Grp Volume(v), veh/h	328	0	278	88	0	96	65	0	36	14	0	0
Grp Sat Flow(s), veh/h/ln	1865	0	1571	1097	0	1695	1418	0	1569	1623	0	0
Q Serve(g_s), s	0.0	0.0	3.5	0.2	0.0	1.0	2.0	0.0	1.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.4	0.0	3.5	3.7	0.0	1.0	2.5	0.0	1.3	0.5	0.0	0.0
Prop In Lane	0.05		0.49	0.55		0.06	1.00		1.00	0.21		0.64
Lane Grp Cap(c), veh/h	1420	0	1143	890	0	1233	270	0	166	245	0	0
V/C Ratio(X)	0.23	0.00	0.24	0.10	0.00	0.08	0.24	0.00	0.22	0.06	0.00	0.00
Avail Cap(c_a), veh/h	1420	0	1143	890	0	1233	656	0	601	677	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.7	0.0	2.7	2.4	0.0	2.4	25.1	0.0	24.5	24.2	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.5	0.2	0.0	0.1	0.3	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.9	0.0	0.8	0.2	0.0	0.2	0.9	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	3.1	0.0	3.2	2.6	0.0	2.5	25.4	0.0	25.0	24.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	A
Approach Vol, veh/h		606			184			101			14	
Approach Delay, s/veh		3.1			2.5			25.3			24.3	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		48.6		11.4		48.6		11.4				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		27.0		23.0		27.0		23.0				
Max Q Clear Time (g_c+l1), s		5.5		2.5		5.7		4.5				
Green Ext Time (p_c), s		5.6		0.0		1.6		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				5.8								
HCM 6th LOS				A								

Lanes, Volumes, Timings
2: Wildwood Blvd SW & SW Clark St

06/27/2019



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	W			W		W	
Traffic Volume (vph)	21	0	1	73	1	126	45
Future Volume (vph)	21	0	1	73	1	126	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25		25	
Link Distance (ft)	318			280		271	
Travel Time (s)	8.7			7.6		7.4	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							
Sign Control	Stop			Free		Free	
Intersection Summary							
Area Type:	Other						
Control Type:	Unsignalized						

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	W	W	W	U	U	U	U
Traffic Vol, veh/h	21	0	1	73	1	126	45
Future Vol, veh/h	21	0	1	73	1	126	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	0
Mvmt Flow	25	0	1	87	1	150	54

Major/Minor	Minor2	Major1	Major2				
Conflicting Flow All	266	177	204	0	-	-	0
Stage 1	177	-	-	-	-	-	-
Stage 2	89	-	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-	-
Pot Cap-1 Maneuver	762	917	1391	-	-	-	-
Stage 1	882	-	-	-	-	-	-
Stage 2	940	-	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-	-
Mov Cap-1 Maneuver	761	917	1391	-	-	-	-
Mov Cap-2 Maneuver	761	-	-	-	-	-	-
Stage 1	881	-	-	-	-	-	-
Stage 2	940	-	-	-	-	-	-

Approach	EB	NB	SB				
HCM Control Delay, s	9.9	0.1					
HCM LOS	A						

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	1391	-	761	-	-		
HCM Lane V/C Ratio	0.001	-	0.033	-	-		
HCM Control Delay (s)	7.6	0	9.9	-	-		
HCM Lane LOS	A	A	A	-	-		
HCM 95th %tile Q(veh)	0	-	0.1	-	-		

2021 With Project

Lanes, Volumes, Timings

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	213	22	39	407	0	94	0	87	2	0	18
Future Volume (vph)	1	213	22	39	407	0	94	0	87	2	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		150	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		714			700			271			377	
Travel Time (s)		19.5			19.1			7.4			10.3	
Confl. Peds. (#/hr)	6	16	16		6	5						5
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	6%	11%	9%	3%	0%	1%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	21.0	21.0		27.0	27.0		10.0	10.0	10.0	24.0	24.0	
Total Split (s)	35.0	35.0		35.0	35.0		25.0	25.0	25.0	25.0	25.0	
Total Split (%)	58.3%	58.3%		58.3%	58.3%		41.7%	41.7%	41.7%	41.7%	41.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 60

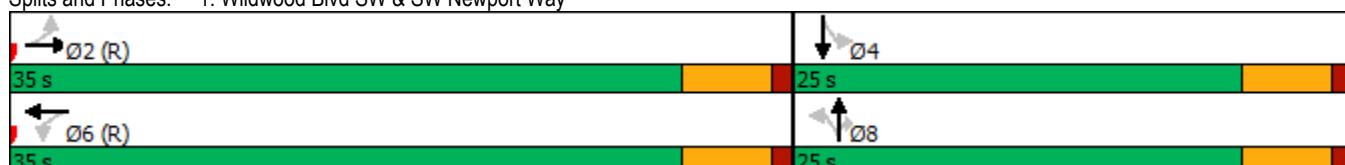
Actuated Cycle Length: 60

Offset: 58 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 1: Wildwood Blvd SW & SW Newport Way



Queues

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	271	513	108	100	23
v/c Ratio	0.12	0.23	0.44	0.28	0.07
Control Delay	4.5	5.2	26.1	6.6	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	5.2	26.1	6.6	5.0
Queue Length 50th (ft)	13	30	36	0	0
Queue Length 95th (ft)	37	75	60	25	9
Internal Link Dist (ft)	634	620	191		297
Turn Bay Length (ft)				150	
Base Capacity (vph)	2257	2243	463	589	555
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.23	0.23	0.17	0.04
Intersection Summary					

HCM 6th Signalized Intersection Summary

1: Wildwood Blvd SW & SW Newport Way

06/27/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	213	22	39	407	0	94	0	87	2	0	18
Future Volume (veh/h)	1	213	22	39	407	0	94	0	87	2	0	18
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1856	1856	1856	1900	1900	1856	1900	1900	1900
Adj Flow Rate, veh/h	1	245	25	45	468	0	108	0	100	2	0	21
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	6	6	6	3	3	3	0	0	3	0	0	0
Cap, veh/h	61	2241	225	228	2245	0	278	0	166	71	9	156
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.00	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1	3086	310	217	3176	0	1477	0	1550	55	83	1451
Grp Volume(v), veh/h	143	0	128	268	245	0	108	0	100	23	0	0
Grp Sat Flow(s), veh/h/ln	1810	0	1588	1704	1604	0	1477	0	1550	1589	0	0
Q Serve(g_s), s	0.0	0.0	1.4	0.0	3.0	0.0	2.8	0.0	3.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	1.4	2.8	3.0	0.0	4.1	0.0	3.7	0.8	0.0	0.0
Prop In Lane	0.01		0.20	0.17		0.00	1.00		1.00	0.09		0.91
Lane Grp Cap(c), veh/h	1375	0	1153	1308	1165	0	278	0	166	236	0	0
V/C Ratio(X)	0.10	0.00	0.11	0.20	0.21	0.00	0.39	0.00	0.60	0.10	0.00	0.00
Avail Cap(c_a), veh/h	1375	0	1153	1308	1165	0	594	0	517	588	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.4	0.0	2.4	2.6	2.7	0.0	25.6	0.0	25.6	24.3	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.4	0.4	0.0	0.7	0.0	2.6	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.4	0.0	0.3	0.7	0.7	0.0	1.5	0.0	1.4	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	2.6	0.0	2.6	3.0	3.1	0.0	26.3	0.0	28.1	24.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	A
Approach Vol, veh/h		271			513				208			23
Approach Delay, s/veh		2.6			3.0				27.2			24.4
Approach LOS		A			A				C			C
Timer - Assigned Phs		2			4			6			8	
Phs Duration (G+Y+Rc), s		48.5			11.5			48.5			11.5	
Change Period (Y+Rc), s		5.0			5.0			5.0			5.0	
Max Green Setting (Gmax), s		30.0			20.0			30.0			20.0	
Max Q Clear Time (g_c+l1), s		3.4			2.8			5.0			6.1	
Green Ext Time (p_c), s		2.4			0.0			4.8			0.6	
Intersection Summary												
HCM 6th Ctrl Delay					8.3							
HCM 6th LOS					A							

Lanes, Volumes, Timings
2: Wildwood Blvd SW & SW Clark St

06/27/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Volume (vph)	62	1	1	139	33	19
Future Volume (vph)	62	1	1	139	33	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	318			280	271	
Travel Time (s)	8.7			7.6	7.4	
Confl. Peds. (#/hr)	18	3	3			18
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	4%	0%	100%	2%	10%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	62	1	1	139	33	19
Future Vol, veh/h	62	1	1	139	33	19
Conflicting Peds, #/hr	18	3	3	0	0	18
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	0	100	2	10	0
Mvmt Flow	74	1	1	165	39	23

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	254	72	80	0	-
Stage 1	69	-	-	-	-
Stage 2	185	-	-	-	-
Critical Hdwy	6.44	6.2	5.1	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.3	3.1	-	-
Pot Cap-1 Maneuver	738	1010	1081	-	-
Stage 1	957	-	-	-	-
Stage 2	842	-	-	-	-
Platoon blocked, %	1	1	1	-	-
Mov Cap-1 Maneuver	713	990	1062	-	-
Mov Cap-2 Maneuver	713	-	-	-	-
Stage 1	940	-	-	-	-
Stage 2	828	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1062	-	716	-	-
HCM Lane V/C Ratio	0.001	-	0.105	-	-
HCM Control Delay (s)	8.4	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lanes, Volumes, Timings

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	427	136	49	122	6	66	0	36	3	2	8
Future Volume (vph)	16	427	136	49	122	6	66	0	36	3	2	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	150	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		714			700			271			377	
Travel Time (s)		19.5			19.1			7.4			10.3	
Confl. Peds. (#/hr)	11	11	11		11	9						9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	21.0	21.0		27.0	27.0		10.0	10.0	10.0	24.0	24.0	
Total Split (s)	32.0	32.0		32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (%)	53.3%	53.3%		53.3%	53.3%		46.7%	46.7%	46.7%	46.7%	46.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min		C-Min	C-Min		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 60

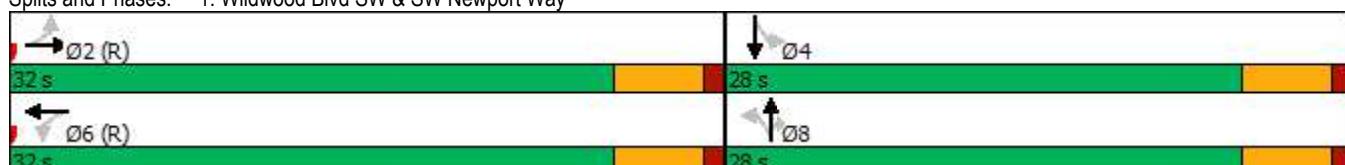
Actuated Cycle Length: 60

Offset: 30 (50%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 1: Wildwood Blvd SW & SW Newport Way



Queues

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	616	188	70	38	14
v/c Ratio	0.25	0.09	0.37	0.15	0.06
Control Delay	3.2	3.3	28.6	9.7	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	3.3	28.6	9.7	15.4
Queue Length 50th (ft)	27	8	24	0	2
Queue Length 95th (ft)	55	20	53	21	14
Internal Link Dist (ft)	634	620	191		297
Turn Bay Length (ft)					150
Base Capacity (vph)	2454	2076	540	642	610
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.09	0.13	0.06	0.02
Intersection Summary					

HCM 6th Signalized Intersection Summary

1: Wildwood Blvd SW & SW Newport Way

06/27/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	427	136	49	122	6	66	0	36	3	2	8
Future Volume (veh/h)	16	427	136	49	122	6	66	0	36	3	2	8
Initial Q (Q _b) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	17	454	145	52	130	6	70	0	38	3	2	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	0	0	0
Cap, veh/h	92	1878	584	514	1499	75	272	0	168	88	47	112
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	39	2586	804	577	2064	103	1418	0	1570	145	435	1044
Grp Volume(v), veh/h	334	0	282	89	0	99	70	0	38	14	0	0
Grp Sat Flow(s), veh/h/ln	1866	0	1564	1047	0	1696	1418	0	1570	1624	0	0
Q Serve(g_s), s	0.0	0.0	3.6	0.2	0.0	1.0	2.3	0.0	1.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	3.6	3.8	0.0	1.0	2.7	0.0	1.3	0.5	0.0	0.0
Prop In Lane	0.05		0.51	0.58		0.06	1.00		1.00	0.21		0.64
Lane Grp Cap(c), veh/h	1418	0	1136	856	0	1232	272	0	168	247	0	0
V/C Ratio(X)	0.24	0.00	0.25	0.10	0.00	0.08	0.26	0.00	0.23	0.06	0.00	0.00
Avail Cap(c_a), veh/h	1418	0	1136	856	0	1232	656	0	602	677	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.7	0.0	2.7	2.4	0.0	2.4	25.1	0.0	24.5	24.1	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.5	0.2	0.0	0.1	0.4	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.9	0.0	0.8	0.2	0.0	0.2	0.9	0.0	0.5	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	3.1	0.0	3.3	2.6	0.0	2.5	25.5	0.0	25.0	24.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	C	C	A	A
Approach Vol, veh/h		616			188			108			14	
Approach Delay, s/veh		3.2			2.6			25.3			24.2	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		48.6		11.4		48.6		11.4				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		27.0		23.0		27.0		23.0				
Max Q Clear Time (g_c+l1), s		5.6		2.5		5.8		4.7				
Green Ext Time (p_c), s		5.7		0.0		1.6		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			6.0									
HCM 6th LOS			A									

Lanes, Volumes, Timings
2: Wildwood Blvd SW & SW Clark St

06/27/2019



Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y			Y		Y	
Traffic Volume (vph)	28	0	1	73	1	127	57
Future Volume (vph)	28	0	1	73	1	127	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25		25	
Link Distance (ft)	318			280		271	
Travel Time (s)	8.7			7.6		7.4	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)							
Sign Control	Stop			Free		Free	
Intersection Summary							
Area Type:	Other						
Control Type:	Unsignalized						

Intersection

Int Delay, s/veh 1

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	Y	Y	Y	Y	Y	Y	Y
Traffic Vol, veh/h	28	0	1	73	1	127	57
Future Vol, veh/h	28	0	1	73	1	127	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	0
Mvmt Flow	33	0	1	87	1	151	68

Major/Minor	Minor2	Major1	Major2				
Conflicting Flow All	274	185	219	0	-	-	0
Stage 1	185	-	-	-	-	-	-
Stage 2	89	-	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-	-
Pot Cap-1 Maneuver	753	907	1372	-	-	-	-
Stage 1	875	-	-	-	-	-	-
Stage 2	940	-	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-	-
Mov Cap-1 Maneuver	753	907	1372	-	-	-	-
Mov Cap-2 Maneuver	753	-	-	-	-	-	-
Stage 1	874	-	-	-	-	-	-
Stage 2	940	-	-	-	-	-	-

Approach	EB	NB	SB				
HCM Control Delay, s	10	0.1					
HCM LOS	B						

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	1372	-	753	-	-		
HCM Lane V/C Ratio	0.001	-	0.044	-	-		
HCM Control Delay (s)	7.6	0	10	-	-		
HCM Lane LOS	A	A	B	-	-		
HCM 95th %tile Q(veh)	0	-	0.1	-	-		